

A. BATES & W. T. B. ROBERTS.

CEMENTING MACHINE.

APPLICATION FILED APR. 25, 1910.

Patented June 25, 1912.

2 SHEETS-SHEET 1.

1,030,273.

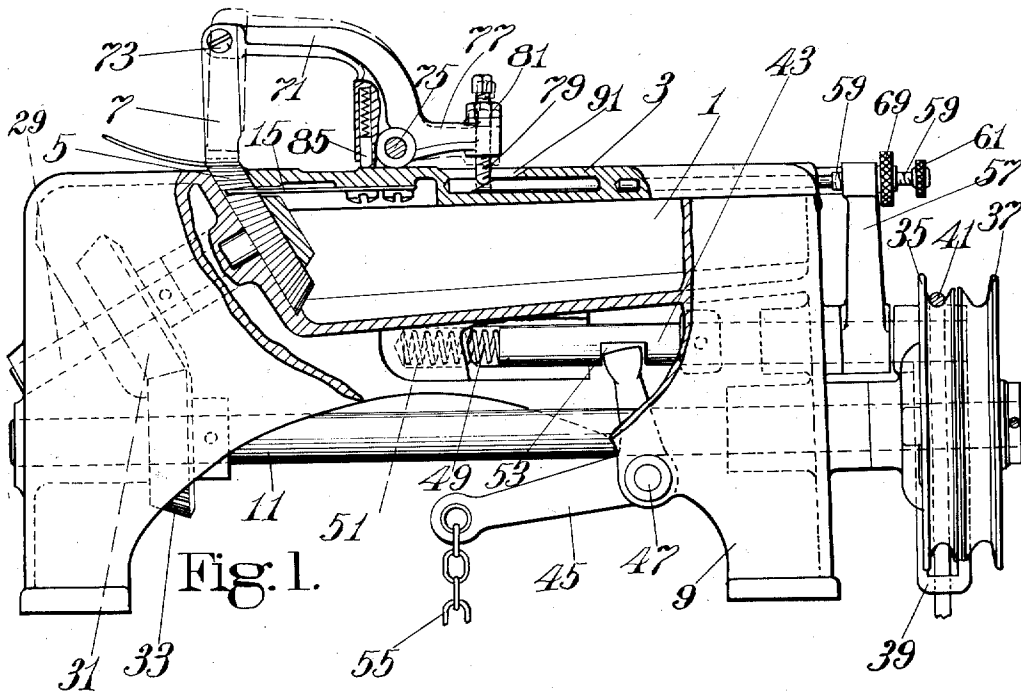


Fig. 1.

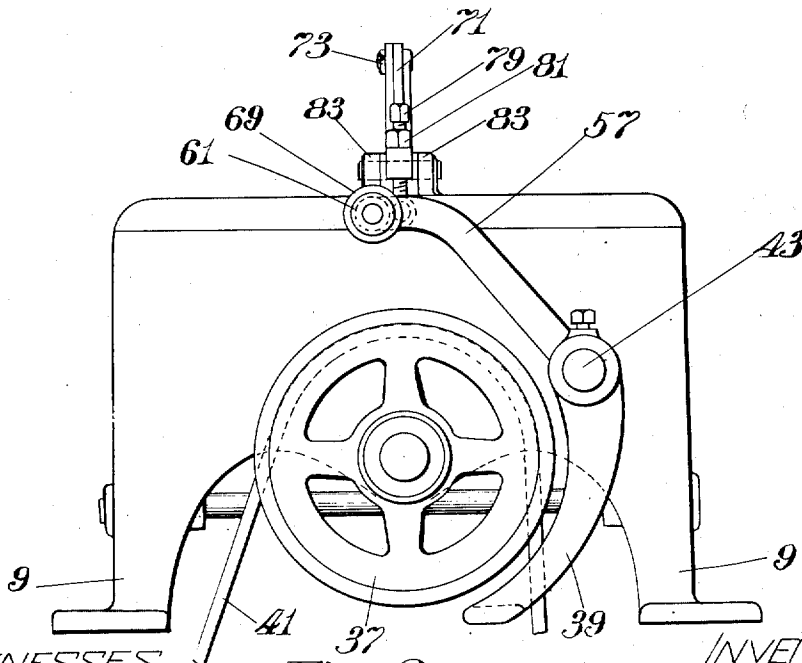


Fig. 2

WITNESSES.

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INVENTORS.

Arthur Bates
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By their Attorney,
Nelson H. Howard

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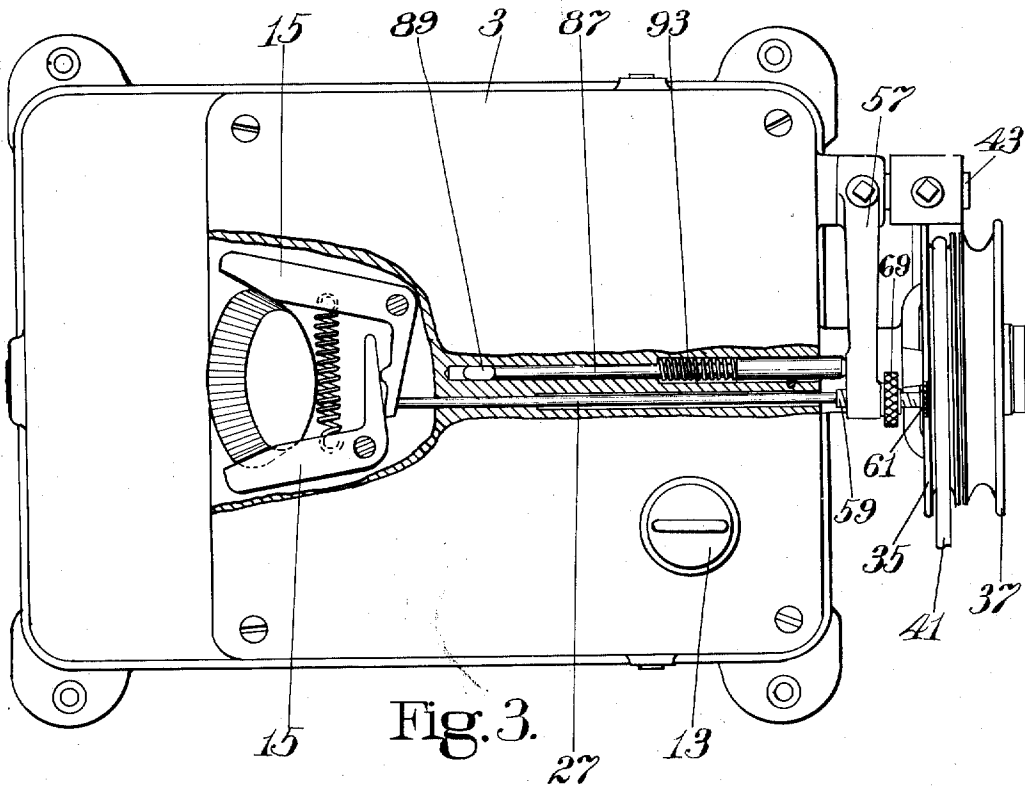


Fig. 3.

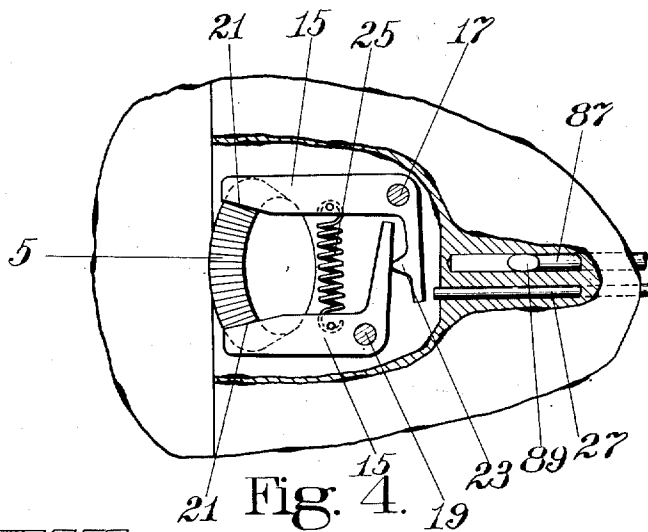


Fig. 4.

WITNESSES.

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UNITED STATES PATENT OFFICE.

ARTHUR BATES AND WILLIAM THOMAS BUCKINGHAM ROBERTS, OF LEICESTER, ENGLAND, ASSIGNORS TO UNITED SHOE MACHINERY COMPANY, OF PATERSON, NEW JERSEY, A CORPORATION OF NEW JERSEY.

CEMENTING-MACHINE.

1,030,273.

Specification of Letters Patent. Patented June 25, 1912.

Application filed April 25, 1910. Serial No. 557,579.

To all whom it may concern:

Be it known that we, ARTHUR BATES and WILLIAM T. B. ROBERTS, subjects of the King of England, residing at Leicester, Leicestershire, England, have invented certain Improvements in Cementing-Machines, of which the following description, in connection with the accompanying drawings, is a specification, like reference characters on the drawings indicating like parts in the several figures.

This invention relates to machines for applying adhesive material to stock and is herein shown as embodied in a machine for applying cement to leather. These machines commonly comprise a reservoir for cement and an applying member, which is often a roll, for taking cement from said reservoir and applying it to the work. The cement ordinarily used for this sort of work consists of a solution of rubber in a volatile solvent such as naphtha. It is therefore desirable that communication between the reservoir and the atmosphere, a certain amount of which is practically unavoidable during the operation of the machine, should be cut off completely when the machine is idle. Heretofore the operator has been depended upon to place a cap over the opening in the reservoir or to close a gate or to adjust some similar device as soon as actuation of the machine ceased—for example, at the end of the day's work. In practice, however, the operator often neglects to close the reservoir whereupon evaporation of the solvent occurs.

Accordingly, one feature of the present invention consists in the provision, with a machine having a cement applying member, of means for applying power thereto, a reservoir, and means for automatically closing or sealing the reservoir when power is withdrawn from the cement applying member. In the illustrated embodiment the construction is such that the movement of a single member, for example, a treadle, starts the actuation of the cement applying member and opens the sealing means, while release of said member serves to stop the actuation of the applying member and to render the sealing means operative. With this construction access of air to the reservoir

is permitted only during the operation of the machine and is automatically prevented as soon as actuation of the machine ceases. Preferably the construction of the machine is such that a roll dips into the reservoir and raises the cement to the work, and the sealing means takes the form of a plurality of gates or strippers which in addition to their function of sealing the reservoir serve also to control the amount of cement carried by the roll to the work. In order that the actuation of the sealing means and that of the cement applying means may take place in the desired sequence another feature of this invention consists in the provision of adjustable means for timing the opening and closing of the sealing means with respect to the application of power to the cement applying means so that, for example, the automatic opening of the sealing means may take place before or simultaneously with the application of said power as desired. This adjustable means may also to regulate the extent of opening of the sealing means and consequently to vary the flow of cement.

Another feature of this invention consists in the provision of means whereby movement of the member which starts the actuation of the cement applying member may cause a work-feeding means to become operative. Preferably this work-feeding means comprises a presser which is held in inoperative position until the cement applying member is actuated and is automatically returned to said position when power is withdrawn from said member. And in order that the machine may be adapted to apply cement to work of different thickness means are provided for varying the extent of movement of said presser.

These and other features of the invention including certain details of construction and combinations of parts will be described in connection with the accompanying drawings and will be pointed out in the claims.

Referring now to the accompanying drawings:—Figure 1 is a side elevation, with a part in section, of a cementing machine illustrating the preferred form of this invention, a piece of work being shown in position to receive cement; Fig. 2 is an end view

of the machine shown in Fig. 1 and regarded from the right of an observer of that figure; Fig. 3 is a plan of the machine shown in Fig. 1 with a part in section to show more clearly the construction; and Fig. 4 is a view similar to a part of Fig. 3 with the parts in a different operative position.

The machine consists of a reservoir or cement receptacle 1, the upper surface or cover 3 of which forms a work table. Extending through this table is a cement distributing roll 5 by which the cement is applied to the work which is fed between a work presser 7 and the roll 5, a guide of any suitable form being employed against which the edge of the work is kept in contact during its feeding movement.

The reservoir 1 is formed as the upper part of a frame having supports or legs 9 within the lower part of which frame a driving shaft 11 and other parts of the operating mechanism hereinafter to be described are located. The cover 3 is secured to the reservoir 1 in such a manner as to secure an air-tight joint around its edges, and the aperture by which the cement is introduced into the reservoir is also tightly closed by means of a screwed plug 13. The aperture through which the cement distributing roll 5 projects is also adapted to be sealed when the machine is out of operation by a particular construction and arrangement of gates or strippers 15 which serve also in the operation of the machine to regulate the supply of cement to the roll and consequently to the work to be cemented. For this purpose the strippers or gates 15 which bear upon the surface of the roll 5 at each side of the periphery of the part of the roll adjacent that portion which projects through the table 3 are formed as bell crank levers pivoted at 17, 19 upon the inside of the cover 3. The operative faces 21 are formed at the outer ends of the bell crank levers while the opposite ends are bent toward each other, as shown in Figs. 3 and 4, and lie in close proximity so that a projection 23 on one lever will bear against the arm of the other lever. A spring 25 is connected with the two levers and tends to hold the operative faces 21 tightly on to the sides of the distributing roll 5 and so close the opening in the table 3 through which the roll projects and thus seal the cement chamber. The spring 25 also keeps the projection 23 on the one lever in contact with the arm of the other lever.

To operate the bell crank levers 15 a pusher rod 27 is employed which is mounted in a bearing in the cover 3 with its end in contact with the arm of the bell crank lever carrying the projection 23. When the rod 27 is moved forward by the means hereinafter described, the two bell crank levers 15 will be turned simultaneously on their

pivots 17, 19 in opposition to the spring 23 to remove the operative faces 21 from off the surface of the distributing roll 5.

As shown in the drawings the distributing roll 5 preferably is formed as a truncated cone and mounted on a shaft 29 that is inclined to the horizontal so that the highest part of the portion of the roll that projects above the surface of the table will be substantially parallel thereto. The inclined shaft 29 is mounted in bearings formed in the machine frame and has pinned to it a bevel gear 31 which meshes with another bevel gear 33 upon the horizontal driving shaft 11. Also upon the driving shaft 11 fast and loose pulleys, 35 and 37 respectively, are mounted and a belt shifter 39 for transferring the driving belt 41 from one to the other of these pulleys is secured upon a guide rod 43 that is arranged to move in parallel relationship with the driving shaft 11, the said guide rod being operated by a bell crank lever 45 pivoted at 47 to the frame of the machine. The guide rod 43 is maintained normally in a position to keep the belt 41 upon the loose pulley 37 by a spring 49 that is located between the end of the rod 43 and the end of a recess 51 in the frame in which the rod 43 slides. The guide rod is operated in opposition to the spring by the bell crank lever, one arm of which engages a recess 53 in the guide rod while the other end of the said lever is connected by a chain 55 with a treadle (not shown) by which the machine is put into operation.

The pusher rod 27 for operating the gates 21 is actuated by an arm 57 that is fixed to the guide rod 43 that carries the belt shifter 39. To enable the opening and closing of the gates 15 to be timed as desired with respect to the application of power to the roll 5 and withdrawal of the same therefrom the pusher rod is acted upon by a screw stop 59 which is provided with a knurled head 61 and with a set nut 63 to hold it in adjusted position. By screwing the stop 59 inwardly or outwardly in the arm 57 the distance to which rod 27 is moved by the arm 57 may be varied and the opening of the gates 15 may be timed with respect to the shifting of the belt 41. It should also be understood that the position of the stop 59 determines the extent to which the gates 15 are opened and hence regulates the amount of cement which is applied to the work.

The presser 7, between which and the distributing roll 5 the work is fed, is carried upon an arm 71 to which it is secured by a screw 73. The arm 71 is pivoted upon a shaft or spindle 75 and is provided with an extension 77 having a boss through which is threaded a screw stop 79 provided with a set nut 81. The shaft or spindle 75 is mounted

in bearings 83 upstanding from the cover 3. The presser is maintained normally in its raised position, as shown in dotted lines in Fig. 1, by a spring-pressed plunger 85 located in a recess in the arm 71, the said plunger bearing at its end against the cover 3.

To depress the presser 7 into contact with the work a rod 87 is provided, the said rod working in a bearing in the cover 3 and being provided with a beveled end 89 which is adapted to act upon the end of the screw stop 79. The table 3 has an opening 91 to permit the end of the screw stop 79 to be engaged by the beveled end of the rod 87. The position of the screw stop 79, it should be noted, serves as means for varying the extent of movement of said foot. The rod 87, when the machine is inoperative, is kept with the beveled end out of contact with the pin 79 on the presser arm by a spring 93 which surrounds the rod and bears at one end against a shoulder on said rod and at its opposite end against the end of a bore in the cover, as shown clearly in Fig. 3. The rod 87 is so situated in the cover 3 that its end will be engaged by the arm 57 which actuates the pusher rod 27 so that this arm not only causes the gates 15 to be moved from the distributing roll 5 but also actuates the presser 7 to bear upon the work on the said roll.

Assuming the machine to be in its inoperative position, that is with the belt 41 upon the loose pulley 37, the faces 21 of the gates 15 closed tightly on to the sides of the cement distributing roll 5 and the presser 7 raised from the table, the operation of starting the machine is as follows: The operator depresses the treadle which through the chain 55 turns the bell crank lever upon its pivot 47. Through the engagement of the other arm of the bell crank lever with the recess 53 in the guide rod 43, the latter is moved longitudinally in opposition to its spring 49 whereby the belt shifter 39 moves the belt 41 from the loose pulley 37 to the fast pulley 35. This starts the driving shaft 11 in motion which motion is communicated to the cement distributing roll 5 through the bevel gears 33 and 31. The movement of the guide rod 43 will also, through the arm 57 which is attached to it, move the pusher rod 27 so as to act upon the bell crank levers 15 and remove the faces 21 from the surface of the cement distributing roll to an extent governed by the adjustment of the screwed pin 59. In the movement of the guide rod 43 the arm 57 also acts upon the rod 87 so as to move its beveled end beneath the screw stop 79 and thus cause the presser arm 71 to be turned on the pivot 75 and the presser brought into contact with the work upon the cement distributing roll. The length of the rod 87

and the adjustment of the screw stop 79 is such as to afford adequate time after the machine is started for the work to be placed in position before the presser is brought to bear upon it.

Having described our invention, what we claim as new and desire to secure by Letters Patent of the United States is:

1. A machine of the class described having, in combination, a reservoir provided with an opening, a cement applying member arranged to receive cement from said reservoir, means independent of the work for applying power to said member and automatic means becoming operative upon withdrawal of said power for closing said opening.

2. A machine of the class described having, in combination, a reservoir provided with an opening, a cement applying member arranged to receive cement from said reservoir, means for applying power to said member, automatic means becoming operative upon withdrawal of said power for closing said opening, and means for timing the operation of said closing means with respect to the withdrawal of power from said cement applying member.

3. A machine of the class described having, in combination, a reservoir, a cement applying member, sealing means for said reservoir, and a single member movable independently of the work to cause actuation of said applying member and opening of said sealing means.

4. A machine of the class described having, in combination, a reservoir, a cement applying member, sealing means for said reservoir, a single member movable to cause actuation of said applying member and opening of said sealing means, and means for timing the opening of said sealing means with respect to the actuation of said cement applying member.

5. A machine of the class described having, in combination, a reservoir, a cement applying member, sealing means for said reservoir, a single member movable to cause actuation of said applying member and opening of said sealing means, and automatic means becoming operative upon release of said single member for stopping the actuation of said applying member and for closing said sealing means.

6. A machine of the class described having, in combination, a reservoir, a cement applying member, sealing means for said reservoir, a single member movable to cause actuation of said applying member and opening of said sealing means, automatic means becoming operative upon release of said single member for stopping the actuation of said applying member and for closing said sealing means, and means for timing the closing of said sealing means

with respect to the cessation of the actuation of said applying member.

7. A machine of the class described having, in combination, a reservoir, a cement applying member, means for feeding the work, and a single member movable first to cause actuation of said applying member and then to render said work feeding means operative.
10. 8. A machine of the class described having, in combination, a reservoir, a cement applying member, means for feeding the work, a single member movable first to cause actuation of said applying member and then to render said work feeding means operative, and automatic means becoming operative upon release of said single member for rendering said work feeding means inoperative.
15. 9. A machine of the class described having, in combination, a reservoir, a cement applying member, a presser for cooperating with said member to feed the work, and a single member movable to cause successively actuation of said applying member and movement of said presser into engagement with the work.
20. 10. A machine of the class described having, in combination, a reservoir, a cement applying member, a presser for cooperating with said member to feed the work, resilient means normally holding said presser in inoperative position, a driving member for rotating said cement applying member, and means for connecting said members, said
25. connecting means having provision for moving said presser to operative position.
30. 11. A machine of the class described having, in combination, a reservoir, a cement applying member, a presser for cooperating with said member to feed the work, resilient means normally holding said presser in inoperative position, a driving member for rotating said cement applying member, means for connecting said members, said
35. connecting means having provision for moving said presser to operative position, and means for varying the extent of movement of said presser.
40. 12. A machine of the class described having, in combination, a reservoir, a cement applying member, means for actuating said member, sealing means for said reservoir, a presser, and a single member for opening said sealing means and for moving said
45. presser to operative position.
50. 13. A machine of the class described having, in combination, a reservoir, a cement applying member, means for actuating said member, sealing means for said reservoir, a presser, a single member for opening said sealing means and for moving said presser to operative position, and means for varying the extent of opening of said sealing means.
55. 14. A machine of the class described having, in combination, a reservoir, a cement applying member, sealing means for said reservoir, a presser, and a single member for causing actuation of said applying member, for opening said sealing means and for moving said presser into operative position.
60. 15. A machine of the class described having, in combination, a reservoir, a cement applying member, sealing means for said reservoir, a presser, a single member for causing actuation of said applying member, for opening said sealing means and for moving said presser into operative position, means for varying the extent of opening of the sealing means and means for varying the extent of movement of the presser.
65. 16. A machine of the class described having, in combination, a reservoir provided with a slot in one wall thereof, a rotary cement applying member extending through said slot and arranged to receive cement from said reservoir there being openings between the ends of said slot and the adjacent surface of said applying member, gates normally closing said openings and means becoming operative upon starting said applying member for moving said gates to open position.
70. 17. A machine of the class described having, in combination, a reservoir provided with a slot in one wall thereof, a rotary cement applying member extending through said slot and arranged to receive cement from said reservoir, there being openings between the ends of said slot and the adjacent surface of said applying member, gates for said openings, resilient means normally closing said gates, a driving member for rotating said cement applying member, and means adapted for manual operation for connecting said members, said connecting means having provision for opening said gates.
75. 18. A machine of the class described having, in combination, a reservoir provided with a slot in one wall thereof, a rotary cement applying member extending through said slot and arranged to receive cement from said reservoir, there being openings between the ends of said slot and the adjacent surface of said applying member, gates normally closing said openings, means becoming operative upon starting said applying member for moving said gates to open position, and adjustable means for varying the extent of movement of said gates.
80. 19. A machine of the class described having, in combination, a reservoir, an applying member arranged to receive cement from said reservoir and apply it to the work, strippers for controlling the flow of cement, and treadle controlled mechanism for causing actuation of said member and opening of said strippers.
85. 20. A machine of the class described having, in combination, a reservoir, a cement applying member, sealing means for said reservoir, a presser, and a single member for causing actuation of said applying member, for opening said sealing means and for moving said presser into operative position.
90. 15. A machine of the class described having, in combination, a reservoir, a cement applying member, sealing means for said reservoir, a presser, a single member for causing actuation of said applying member, for opening said sealing means and for moving said presser into operative position, means for varying the extent of opening of the sealing means and means for varying the extent of movement of the presser.
95. 16. A machine of the class described having, in combination, a reservoir provided with a slot in one wall thereof, a rotary cement applying member extending through said slot and arranged to receive cement from said reservoir there being openings between the ends of said slot and the adjacent surface of said applying member, gates normally closing said openings and means becoming operative upon starting said applying member for moving said gates to open position.
100. 17. A machine of the class described having, in combination, a reservoir provided with a slot in one wall thereof, a rotary cement applying member extending through said slot and arranged to receive cement from said reservoir, there being openings between the ends of said slot and the adjacent surface of said applying member, gates for said openings, resilient means normally closing said gates, a driving member for rotating said cement applying member, and means adapted for manual operation for connecting said members, said connecting means having provision for opening said gates.
105. 18. A machine of the class described having, in combination, a reservoir provided with a slot in one wall thereof, a rotary cement applying member extending through said slot and arranged to receive cement from said reservoir, there being openings between the ends of said slot and the adjacent surface of said applying member, gates normally closing said openings, means becoming operative upon starting said applying member for moving said gates to open position, and adjustable means for varying the extent of movement of said gates.
110. 19. A machine of the class described having, in combination, a reservoir, an applying member arranged to receive cement from said reservoir and apply it to the work, strippers for controlling the flow of cement, and treadle controlled mechanism for causing actuation of said member and opening of said strippers.
115. 20. A machine of the class described having, in combination, a reservoir, a cement applying member, sealing means for said reservoir, a presser, and a single member for causing actuation of said applying member, for opening said sealing means and for moving said presser into operative position.
120. 15. A machine of the class described having, in combination, a reservoir, a cement applying member, sealing means for said reservoir, a presser, a single member for causing actuation of said applying member, for opening said sealing means and for moving said presser into operative position, means for varying the extent of opening of the sealing means and means for varying the extent of movement of the presser.
125. 16. A machine of the class described having, in combination, a reservoir provided with a slot in one wall thereof, a rotary cement applying member extending through said slot and arranged to receive cement from said reservoir there being openings between the ends of said slot and the adjacent surface of said applying member, gates normally closing said openings and means becoming operative upon starting said applying member for moving said gates to open position.
130. 17. A machine of the class described having, in combination, a reservoir provided with a slot in one wall thereof, a rotary cement applying member extending through said slot and arranged to receive cement from said reservoir, there being openings between the ends of said slot and the adjacent surface of said applying member, gates for said openings, resilient means normally closing said gates, a driving member for rotating said cement applying member, and means adapted for manual operation for connecting said members, said connecting means having provision for opening said gates.

ing, in combination, a reservoir, an applying member arranged to receive cement from said reservoir and apply it to the work, strippers for controlling the flow of cement, treadle controlled mechanism for causing actuation of said member and opening of said strippers, and means for varying the extent of opening of said strippers.

21. A machine of the class described, having, in combination, a reservoir provided with a slot in a wall thereof, an applying roll extending through said slot, gates normally contacting with said roll, a rod for opening said gates, and a single member for applying power to said roll and for opening said gates.

22. A machine of the class described, having, in combination, a reservoir provided with a slot in a wall thereof, an applying roll extending through said slot, gates normally contacting with said roll, a rod for opening said gates, a single member for applying power to said roll and for opening said gates, and resilient means opposing movement of said single member.

23. A machine of the class described, having, in combination, a reservoir provided with a slot in one wall thereof, a rotary cement applying member extending through said slot and arranged to receive cement from said reservoir, a presser for holding the work against said roll, and treadle con-

trolled means for moving said presser to operative position.

24. A machine of the class described having, in combination, a reservoir provided with a slot in one wall thereof, a rotary cement applying member extending through said slot and arranged to receive cement from said reservoir, there being openings between the ends of said slot and the adjacent surface of said applying member, gates normally closing said openings, and treadle controlled means for opening said gates.

25. A machine of the class described having, in combination, a reservoir for cement, said reservoir being provided with an opening, means for applying cement to the work, sealing means for said opening and treadle controlled mechanism for opening said sealing means.

26. A machine of the class described having, in combination, means for applying cement to stock, stock feeding means, and treadle controlled mechanism for moving said feeding means to operative position.

In testimony whereof we have signed our names to this specification in the presence of two subscribing witnesses.

ARTHUR BATES.

WILLIAM THOMAS BUCKINGHAM ROBERTS.

Witnesses:

ARTHUR ERNEST JERRAM,

ELEANOR PYWELL.

Correction in Letters Patent No. 1,030,273.

It is hereby certified that in Letters Patent No. 1,030,273, granted June 25, 1912, upon the application of Arthur Bates and William Thomas Buckingham Roberts, of Leicester, England, for an improvement in "Cementing-Machines," an error appears in the printed specification requiring correction as follows: Page 3, line 87, after the word "means," insert the words *independent of the work*; and that the said Letters Patent should be read with this correction therein that the same may conform to the record of the case in the Patent Office.

Signed and sealed this 22d day of October, A. D., 1912.

[SEAL.]

C. C. BILLINGS,

Acting Commissioner of Patents.

ing, in combination, a reservoir, an applying member arranged to receive cement from said reservoir and apply it to the work, strippers for controlling the flow of cement, treadle controlled mechanism for causing actuation of said member and opening of said strippers, and means for varying the extent of opening of said strippers.

21. A machine of the class described, having, in combination, a reservoir provided with a slot in a wall thereof, an applying roll extending through said slot, gates normally contacting with said roll, a rod for opening said gates, and a single member for applying power to said roll and for opening said gates.

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23. A machine of the class described, having, in combination, a reservoir provided with a slot in one wall thereof, a rotary cement applying member extending through said slot and arranged to receive cement from said reservoir, a presser for holding the work against said roll, and treadle con-

trolled means for moving said presser to operative position.

24. A machine of the class described having, in combination, a reservoir provided with a slot in one wall thereof, a rotary cement applying member extending through said slot and arranged to receive cement from said reservoir, there being openings between the ends of said slot and the adjacent surface of said applying member, gates normally closing said openings, and treadle controlled means for opening said gates.

25. A machine of the class described having, in combination, a reservoir for cement, said reservoir being provided with an opening, means for applying cement to the work, sealing means for said opening and treadle controlled mechanism for opening said sealing means.

26. A machine of the class described having, in combination, means for applying cement to stock, stock feeding means, and treadle controlled mechanism for moving said feeding means to operative position.

In testimony whereof we have signed our names to this specification in the presence of two subscribing witnesses.

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[SEAL.]

C. C. BILLINGS,

Acting Commissioner of Patents.